

# *Project Baseline Summary Report*

Data Source: **EM CDB**

Operations/Field Office: **Rocky Flats**

Site Summary Level: **Rocky Flats Environmental Technology Site**

Project **RF023 / Utilities & Infrastructure Project**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0436**

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## **General Project Information**

### **Project Description Narratives**

#### **Purpose, Scope, and Technical Approach:**

Purpose: This Project is comprised of two major subprojects; the Utilities Project and the Infrastructure Project.

The purpose of the Utilities Project is to provide the resources necessary to operate and maintain the physical plant infrastructure. This is comprised of activities which produce and distribute utilities (electricity, water, steam, natural gas, and inert gases) for use throughout the Rocky Flats Environmental Technology Site (RFETS).

The purpose of the Infrastructure Project is to provide the resources necessary for support services to RFETS. These services include Consolidate Classified Areas, Food Services, Metrology, Emergency Preparedness, Logistics Services, Operations Support Services, Fire Protection and Prevention, Personal Protective Clothing and Equipment (Laundry), Filter Services, Alarms & Control System Maintenance (Electronic Maintenance), and Shift Superintendents.

The purpose of this project is also to provide the integration of the Kaiser-Hill Team current and future plans for effectively managing the acquisition, use, deactivation, and disposal of facilities the the Site. This project initiates the integration of the facility management plan and the Rocky Flats 2006 Closure Plan.

The majority of these services are provided to maintain the site in a safe and compliant configuration; thus minimizing health and safety vulnerabilities.

Scope: The scope of the Utilities Project is as follows:

- A. Water Utility Operations, Maintenance & Projects - Domestic water treatment and distribution
- B. Nitrogen Plant Operations, Maintenance & Projects - Nitrogen plant facility
- C. Steam Utility Operations, Maintenance & Projects - Steam Generation and distribution
- D. Gas Utility Operations, Maintenance & Projects - Natural Gas and propane distribution
- E. Electric Utility Operations, Maintenance & Projects - Power distribution
- F. Utilities Management/Oversight and Administration
- G. Energy Management

The scope of the Infrastructure Project is as follows:

- A. Consolidate Classified Areas
- B. Operate Food Services (potential for multiple shifts)
- C. Operate Metrology Laboratories - Equipment calibration
- D. Emergency Preparedness
- E. Logistics Services - Material Logistics, Transportation, Roads & Grounds Maintenance, Property Management, Traffic, Garage/Vehicle Fleet Management, Facility Utilization & Planning, Excess Property Disposition (Material Logistics, Excess Property Disposition, Garage and

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Transportation potential for multiple shift operations)

F. Operations Support Services - Kaiser Hill Safeguards, Security, Site Operations & Integration responsibilities

G. Fire Operations - RFETS Fire Department Operations, and Fire Systems Services

H. Personal Protective Clothing and Equipment

I. Filter Services - High Efficiency Particulate Air (HEPA) Filter Installation and Testing

J. Electronic Maintenance - Alarms & Control Systems maintenance, maintenance of Fire & Security alarm systems, detection and suppression systems

K. Shift Superintendent - 24 Hour Site

Management

Technical Approach: Utility & Infrastructure project services are in continuous review of the approach utilized to meet the needs of RFETS, with the goal of maintaining safe and compliant operations while containing and reducing costs.

### **Utility Project**

The operation and maintenance of the Site utility systems must continue at sufficient level until the deactivation/closure of a significant number of the Site facilities is achieved or until the interim endstate is achieved. As facilities are deactivated and decommissioned it is envisioned that the effected portions of the utility systems can also be deactivated and decommissioned.

### **Infrastructure Project**

Infrastructure programs must continue as long as hazards are present, facilities are maintained, and personnel are present. Support services become extremely important during D&D operations. While these infrastructure requirements remain, some reduction in services is expected against the programming in the closure project baseline. This reduction in service is based on a reduction in numbers of facilities and site population.

Facility use planning and relocation of personnel will be accomplished to maximize the space use for personnel remaining on site to perform D&D support activities. Attrition of personnel through normal work termination will account for some reduction in overall site population and space use requirements. Other space use will be projected through construction level space requirements that will not necessitate the allocation of specific office space for many of the trades and crafts personnel involved in the D&D process. Real property will transition from accountable to non-accountable property as the value of this property is reduced to zero in preparation for destruction of facilities. Trailers that are identified as real property will be reclassified as personal property once use based on occupancy is terminated, and these trailers will then be disposed of according to property disposition requirements.

Fire alarms will be disconnected only after the facility is put in a safe configuration, and occupancy of the facility is terminated.

D&D activities will fund requirements for heavy equipment operation in support of D&D work. This activity will not be funded out of site Transportation requirements.

Building clusters will fund requirements for free release of property. Property disposition will accomplish transfer and disposition of property items from the "loading dock" of the facility to final disposition after free release is determined. Free release requirements do not apply to administrative

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## **Project Description Narratives**

facilities.

D&D activities will identify requirements for waste containers sufficiently in advance of needs to allow for acquisition, inspection, delivery, packaging and preparation for shipment. Material Logistics will support the acquisition and inspection requirements. Transportation will support the delivery requirements. Traffic will support requirements for packaging and preparation for shipment.

Site areas will be allowed to return to nature after remediation. Road maintenance will be accomplished only for maintaining safe routes of travel, and will be restricted to filling potholes and patching roadways to maintain safe travel.

### **Project Status in FY 2006:**

This project will be completed.

### **Post-2006 Project Scope:**

No activities are currently scheduled to occur after 2006 for this project.

### **Project End State**

#### Utility Project

In accordance with the established D&D schedule all of the Site utility infrastructure and utility systems will be shutdown and demolished. This includes: 1) the Water Treatment Plant and associated water storage tanks and water lines, 2) the Nitrogen Plant and associated gaseous nitrogen distribution lines, 3) the Steam Plant and associated steam and condensate lines, 4) the natural gas lines, and 6) the high voltage electrical distribution system including substations, poles and wires. Underground utility lines will be abandoned in place unless removed in conjunction with environmental remediation activities. Based on input provided by the environmental remediation (ER) points of contact there are no post closure requirements for electrical power for ER activities at this time.

#### Infrastructure Project

Infrastructure services will be eliminated upon achievement of project closure. Any requirement to continue infrastructure services will require funding outside of the project scope. Use of private or public services will be given primary consideration for any continued requirements.

Current planning for the 2006 Closure Plan reflects conditions for incremental D&D of facilities and utilities throughout the Site. Planning under a revised concept for Site closure involves Utilities and Site Infrastructure programs in the requirements to support utility distribution and site support activities for property disposition, relocation of personnel, and real property maintenance activities.

### **Cost Baseline Comments:**

Cost estimates are based on assumptions and data developed by the technical groups that have responsibility for managing the work. To the extent practical, all cost estimates are Activity-Based Costs (ABC) and tied directly to a defined and detailed work scope. The estimates are developed at the activity level and are further divided into line items. Line items represent individual resource contributions to activities and are the lowest level of input to the planning system. Once the cost estimate is developed,

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## **Project Description Narratives**

each activity is evaluated for cost, technical and schedule risk and the appropriate contingency is determined. Detailed estimates and the basis of estimates (BOEs) for the 2006 Closure Plan are available at the Site.

### **Safety & Health Hazards:**

The principle hazards in the Utilities and Infrastructure Project are radiological, chemical, high temperature (thermal) and pressure systems, and other standard industrial hazards. Most of these hazards will exist throughout the project and are related to utility/program operations, water utility operations, nitrogen plant operations, steam supply operations, gas utility operations, electrical power supply operations, food service operations, metrology laboratory operations, emergency preparedness and operations support services, fire department operations, laundry operations, surveillance, maintenance, inspection, and logistics support. Near the end of Site Closure, the following additional activities will be conducted: characterization, hazardous material removal, deactivation, decommissioning, remediation, and demolition. These hazards will be analyzed and categorized in accordance with the RFETS Safety and Health Program infrastructure policies, manuals, and procedures. Some specific hazards include: compressed nitrogen, steam, condensate, and natural gas.

Additional occupational hazards exist consisting of high noise, high voltage electrical hazards, and fire and hazardous material operations under emergency services. Material handling hazards and heavy equipment operations hazards associated with property management, material movement and transportation related activities exist for personnel involved in these functions.

### **Safety & Health Work Performance:**

This project will be completed within the RFETS Safety and Health Program and within the controls and authorization basis documents defined above to ensure the safety and health of the worker, public and the environment. RFETS has implemented an integrated safety management system consisting of the following elements: radiological safety, criticality safety, emergency management, fire safety, industrial hygiene, nuclear safety, occupational medicine, occupational safety, safeguards and security, safety integration, performance oversight, and standards management. RFETS provides site wide infrastructure programs for each functional area to establish consistent safety standards and support for this project. Safety and health success results from the efficient and effective implementation of these programs. This project is responsible for ensuring that the necessary elements of the safety and health programs are incorporated into the specific project plans and implementing documents, and that an appropriate Readiness Determination and Safety Evaluation Screen (SES)/Unreviewed Safety Question Determination (USQD) have been performed. Specifically, the sitewide Emergency Preparedness Program, the Fire Protection Program (which includes Fire Department Operations), and the roads/highways (in support of the transportation safety program) will be operated and maintained within the scope of this work.

### **PBS Comments:**

No additional information is required for the Utilities and Infrastructure Project.

### **Baseline Validation Narrative:**

Although the 2006 Closure Plan has not been officially validated, it has undergone a high level review by Rocky Flats Field Office (RFFO) and Headquarter personnel. Current independent validation efforts include the following: 1) RFFO has contracted an independent firm to perform a baseline confidence review of the 2006 Closure Plan by the end of FY99, and 2) the Office of Field Management (FM) has contracted a big-five accounting firm to validate the 2006 Closure Plan.

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In addition to the 2006 Closure Plan validation efforts, results/recommendations from several previous baseline validation efforts were used in the development of the 2006 Closure Plan. These validations included: 1) The U.S. Army Corps of Engineers (USACE) performed a validation of the Rocky Flats Ten Year Plan in FY97/FY98, 2) Kaiser-Hill contracted Price Waterhouse Coopers, LLP to conduct an independent validation effort of the 2010 Closure Project Baseline that concluded in May of FY99, and 3) Kaiser-Hill engaged Arthur Andersen, LLP to conduct a schedule and cost risk review of the 2010 Closure Project Baseline.

## General PBS Information

Project Validated?

Date Validated:

Has Headquarters reviewed and approved project?

No

Date Project was Added: 12/1/1997

Baseline Submission Date:

FEDPLAN Project? Yes

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	Y	Y	N	N	N	Y	Y	Y

## Project Identification Information

DOE Project Manager: Jessie Roberson

DOE Project Manager Phone Number: 303-966-2263

DOE Project Manager Fax Number: 303-966-4775

DOE Project Manager e-mail address: ten.year.plan@rfets.gov

Is this a High Visibility Project (Y/N):

## Planning Section

### Baseline Costs (in thousands of dollars)

1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
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## Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS Baseline (current year dollars)	394,927	0	394,927	53,966	53,966	38,075	38,075	45,236	46,116	45,880	46,812	43,794	35,632	27,032	12,384	
PBS Baseline (constant 1999 dollars)	376,024	0	376,024	53,966	53,966	38,075	38,075	45,236	44,904	43,755	43,726	40,065	31,928	23,724	10,645	
PBS EM Baseline (current year dollars)	394,927	0	394,927	53,966	53,966	38,075	38,075	45,236	46,116	45,880	46,812	43,794	35,632	27,032	12,384	
PBS EM Baseline (constant 1999 dollars)	376,024	0	376,024	53,966	53,966	38,075	38,075	45,236	44,904	43,755	43,726	40,065	31,928	23,724	10,645	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

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2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

## Project Reconciliation

### Project Completion Date Changes:

Previously Projected End Date of Project: 9/30/2010

Current Projected End Date of Project: 9/29/2006

### Explanation of Project Completion Date Difference (if applicable):

Scope Deletion

Efficiencies

New Scope

Cost Growth

Science & Technology

Other

The scope of work and end state conditions for the 2006 Plan are similar to the current 2010 Baseline, with a four-year acceleration and a reduction in cost being the two most significant differences. The bottom-up estimate for the 2006 Plan is a \$1.65 billion improvement over the comparable activity-based bottoms-up detail estimate for 2010.

To close the Site four years earlier than the current 2010 Baseline requires a strategically different approach. The two key principles followed in preparing the 2006 Baseline were: 1) safely reducing the urgent risks first, and 2) performing work in a sequence that reduces or eliminates operations, maintenance and security costs (often referred to as - mortgage costs) as early as possible. Key to the 2006 Baseline approach is early closure of the secured Protected Area. Closing the Protected Area as soon as possible means that the high security and maintenance costs for this area can be redeployed to accelerate other closure activities. In addition, D&D and SNM risk reduction activities will be performed simultaneously rather than sequentially, supporting both the risk reduction and mortgage reduction principles. The D&D of non- and lower-contaminated facilities and most environmental remediation work will be deferred until later in the project to allow resources to be focused in the areas that result in the greatest reduction in risks and mortgage costs.

### Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	625,562	Actual 1997 Cost:	53,966	Actual 1998 Cost:	38,075
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	533,521	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			14,405

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## Project Reconciliation

Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars): 547,926

## Project Cost Changes

### Cost Adjustments Reconciliation Narratives

Cost Change Due to Scope Deletions (-):

Cost Reductions Due to Efficiencies (-): 13,881 Rebaselining due to acceleration. Efficiencies dollar estimate is not of audit quality.

Cost Associated with New Scope (+):

Cost Growth Associated with Scope Previously Reported (+):

Cost Reductions Due to Science & Technology Efficiencies (-):

Subtotal: 534,045

Additional Amount to Reconcile (+): -250,062

Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars): 283,983

## Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Water Plant Shutdown	RF-0511		9/30/2005		9/30/2005						
Steam Plant Shutdown	RF-0522		9/30/2003		9/30/2003						
N2 Plant Shutdown	RF-0529		9/30/2002		9/30/2002						
Complete PBD 023 - Utilities & Infrastructure	RF-OTHE-23		9/29/2006		9/29/2006					Y	
PBD 023 Project Start			10/1/1997								

## Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Water Plant Shutdown	RF-0511	Y									Kaiser Hill Internal ( KHIs ) Milestones

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## Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Steam Plant Shutdown	RF-0522	Y									Kaiser Hill Internal ( KHIs ) Milestones
N2 Plant Shutdown	RF-0529	Y									Kaiser Hill Internal ( KHIs ) Milestones
Complete PBD 023 - Utilities & Infrastructure	RF-OTHE-23				Y	Y					Kaiser Hill Internal ( KHIs ) Milestones
PBD 023 Project Start				Y							PBD 023 Project Start